ARGUMENTS

Claims 42-56, 58 and 60-63 rejected under 35USC102(b) as being anticipated by U.S.Patent No. 5,634,447 to Rowells.

According to EXAMINER the rejection of claims 42-56, 58, 60-63 is due to: "ROWELLS discloses an internal combustion engine 10 having housing means, compressor means 34, reciprocating means 28, and fuel supply means 25, to cause combustion of said fuel between said compressor means 34 and said reciprocating means 28 wherein said compressor means 34 and said reciprocating means 28 receive a power transfer from said combustion."

Applicant's claim 42 states, "A internal combustion engine having housing means, compressor means, reciprocating means, and fuel supply means, to cause combustion of said fuel between said compressor means and said reciprocating means wherein said compressor means and said reciprocating means receive a power transfer from said combustion."

Applicant respectfully points out to EXAMINER the compressor means, a turbocharger, disclosed in the ROWELLS patent is connected to the exhaust of the engine because the compressor means is driven by a turbine that receives a power transfer from combustion during the exhaust cycle of the engine. Such a compressor means is incapable of causing said combustion between the compressor means and the reciprocating means in the ROWELLS patent because:

1. a turbocharger uses a turbine section and a compressor section of the open "vane" type.

2. the turbine section of the turbocharger is connected to the atmosphere and must allow exhaust gas pressure direct access to atmospheric pressure.

3. the compressor section of the turbocharger is connected to the atmosphere and must allow compressor gas pressure direct access to atmospheric pressure.

4. the reciprocating means of the engine connects the turbine section of the turbocharger to the compressor section of the turbocharger.

5. the reciprocating means is a inherently a positive displacement compressor.

6. a cylinder exhaust valve is disposed between the turbine section of the turbocharger and the reciprocating means.

7. a cylinder intake valve is disposed between the compressor section of the turbocharger and the reciprocating means.

8. compression causing combustion occurs within part of the reciprocating means, i.e. inside the closed cylinder of the engine, when the cylinder intake valve is closed isolating the compressor section of the turbocharger from the reciprocating means, and when the cylinder exhaust valve is closed isolating the reciprocating means from the turbine section of the turbocharger. Isolating these parts from one another prevents from occurring the process claimed by Applicant in rejected independent claim 42.

9. applicant's allowed independent claim 1 states, "..reciprocating means to compress combustible material held within said housing means between the compressor means and the reciprocating means to cause detonation of said combustible material, wherein the improvement comprises the compressor means can compress more combustible material to the combustion process after detonation commences."

10. applicant's rejected claim 42 states this process, "A internal combustion engine having a housing means, a compressor means, a reciprocating means, a fuel supply means, to cause combustion of said fuel between said compressor means and said reciprocating means wherein said compressor means and said reciprocating means receive a power transfer from said combustion.

11. This process is inherent in the improvement in Applicants independent claim 1 which Examiner has already allowed. This is because in order for compression of the fuel to occur between the reciprocating means and the compressor means contact with the fuel must be present and if contact with the fuel is present during compression, and compression occurs between reciprocating means and compressor means, and a compressor means forces more combustible material, i.e. a fuel, into the engine a power transfer to the reciprocating means and the compressor means must occur when the pressure of such contact rises due to the forced expansion of gases caused by the heat of combustion of the fuel.

Underlining by Applicant to point out the applicable text.

According to ROWELLS his patent states in the SUMMARY OF THE INVENTION, paragraph 3, sentence 1, "...to inject a small quantity of fuel into the cylinders of the engine well in advance of top dead center on the COMPRESSION STROKE and increasing the energy to the turbocharger, inherently increasing boost pressure and braking power." Claim 1, "In an internal combustion engine of the type having a reciprocating piston having a compression stroke, a top dead center position, and a power stroke quantity of fuel to be injected by said fuel injection system into a combustion chamber of said engine during the compression stroke of said piston."

Additionally, the ROWELS patent states in the DESCRIPTION OF THE PREFERRED EMBODIMENT, paragraph 4, sentence 5, "...is disposed to contact and open an exhaust valve 30 of the cylinder at or about the point when the piston 28 reaches its top dead center position at the beginning of the power stroke..." Claim 8, line 33, "...injection of a predetermined small amount of fuel into each engine cylinder prior to a piston in the cylinder reaching a top dead center position on a compression stroke thereby increasing the power required to move the piston to said top dead center position and increasing engine braking." Claim 16, lines 12-18, "...accessing a lookup table in said electronic engine control unit of injection timings before top dead center on a piston compression stroke based on engine speed which will permit said selected quantity of fuel to be completely combusted in the cylinder before the piston reached top dead center..." Lastly, ROWELS disclosure claims in claim 16, last paragraph, "...opening an exhaust valve of the cylinder when the piston is at or after said top dead center position on a power stroke of said piston to relieve compression pressure."

ROWELS states in the foregoing that fuel is injected, causing combustion, well in advance of top dead center, on the compression stroke and implies the exhaust valve of the cylinder is closed since ROWELS states all the injected fuel is burned in the cylinder. This also implies the intake valve of the cylinder is also closed during the compression stroke. This is normally the way these engines operate and the operation of the ROWELS engine in this respect is the same.

ROWELS claims in claim 16 the exhaust valve of the cylinder is opened later, at or after top dead center, to send the power of compression, (not the power of combustion) to the turbocharger. Certainly ROWELS does not also open the intake

valve of the cylinder at or after top dead center to send power to the compressor. If he did this ROWELS would be sending the power of compression in opposite directions driving the turbine in one direction and the compressor in the opposite direction. Such an engine would probably fail to run at all. Combustion in this engine design occurs on the compression stroke when both intake and exhaust valves of the cylinder are closed and does not occur between the compressor means and the reciprocating means as in applicant's patent application.

In the ROWELS patent combustion occurs between the closed cylinder and the reciprocating means; not between the compressor means and the reciprocating means as disclosed in applicants patent application. ROWELS must open a valve of the cylinder, specifically the exhaust valve of the cylinder, after top dead center during the power stroke, to send the power of compression, according to ROWELS, to the turbocharger.

Applicant's patent application does disclose fuel is compressed to detonation and combustion between the compressor means and the reciprocating means wherein said compressor means and said reciprocating means receive a power transfer from said combustion.

Paragraph 0045, "Gear pump 124 pumps air into the engine and functions as a compressor."

Paragraph 0046, "Gear shafts 66 and 67 are crankshaft driven, counter rotating in opposite directions drawing intake air through intake port 40 and force the intake air into passage 50 from which it passes into cylinder 60. Fuel injector 52 projects into passage 50 through rear wall of housing section 34 for injecting fuel into passage 50. ... Passage 50 extends through internal housing wall 335 to cylinder 60 that contains piston 76.

Paragraph 0048, "When piston 76 reaches approximately top dead center the fuel injector 52 injects fuel into passage 50 containing the compressed air from the air compressor. High temperature of the compressed air confined within passage 50 ignites the incoming fuel from fuel injector 52 and combustion begins.

Paragraph 0049, "Force of combustion transfers energy to the teeth of gear shafts 66 and 67 and to piston 76 simultaneously causing these parts to accelerate."

Applicant does not disclose an intake valve in his most basic design and compresses the combustible material to detonation between the compressor means and the reciprocating means. One embodiment of applicants engine has an overhead cam and cylinder intake and exhaust valves and is a two-cycle engine with a four-cycle exhaust stroke. In this design compression occurs between the compressor means and the intake valve of the cylinder. This is a new and novel idea disclosed by applicant.

Applicant's disclosure of opening the intake valve of the cylinder during combustion to send the power of combustion to the reciprocating means during the power stroke of the engine is also a new idea. All other two-cycle engine designs have a power stroke during which the intake valve of the cylinder remains closed. These new ideas are novel, not obvious, and have utility. They allow a licensed manufacturer to construct and sell an internal combustion engine that is smaller and more powerful but appears to be very similar in appearance to a four-cycle internal combustion engine when it operates quite differently in some very important ways.